Regulation 28: Prevention of Future Deaths report

Amy Allan (died 28.9.2018)

	THIS REPORT IS BEING SENT TO: **Mr Matthew Shaw** **Chief Executive** **Great Ormond Street Hospital for Children NHS Foundation Trust** **Great Ormond Street** **London** **WC1N 3JH**
1	**CORONER** I am: Edwin Buckett Assistant Coroner Inner North London St Pancras Coroner's Court Camley Street London N1C 4PP
2	**CORONER'S LEGAL POWERS** I make this report under the Coroners and Justice Act 2009, paragraph 7, Schedule 5, and The Coroners (Investigations) Regulations 2013, Regulations 28 and 29.
3	**INVESTIGATION and INQUEST** On the 11th October, 2018 an investigation was opened into the death of Amy Allan who died aged 14, on the 28th September, 2018 at Great Ormond Street Hospital, London. The investigation progressed to an inquest which I conducted between the 2nd and 5th September, 2019. I made a determination at the conclusion of the inquest that Amy had died as a result of multi-organ failure and that an elective operation on the 4th September, 2018 set in train a sequence of events which led to her death. I reached a narrative conclusion which I have set out in Box 4 below.
4	**CIRCUMSTANCES OF THE DEATH** 1. Amy was born on the 14th January, 2004 with a ventral septal defect

which required heart surgery a few weeks after her birth. She was subsequently diagnosed with Noonan Syndrome, Hypertrophic Cardiomyopathy, Pulmonary Arterial Hypertension, Chronic Thrombocytopenia, borderline Factor 7 deficiency and Kyphoscoliosis.

2. Notwithstanding these conditions, she was able to participate in mainstream school, sport and leisure activities leading a full and active life.

3. As she grew older, she did suffer from increasing back pain and compromised posture caused by the scoliosis.

4. As a result, she was referred to Great Ormond Street Hospital for consideration of elective corrective spinal surgery in early 2018.

5. A mortality risk was originally given of 20% for the operation but this was improved after clinicians considered that the operation could be carried out in a less invasive manner.

6. The operation took place on the 4th September, 2018 and was successful.

7. After the operation, Amy was transferred to the Intensive Care Unit at Great Ormond Street Hospital.

8. Thereafter, the process of extubation occurred at about 11.20pm on the 4th September, 2018.

9. Shortly thereafter, Amy's condition deteriorated and on the 5th September, 2018 she was started on Extra Corporeal Membrane Oxygenation ("ECMO") support at about 8.30am. This was administered on two occasions ending on the 17th September, 2018.

10. Following this, Amy's cardiac function plateaued and she became critically ill.

11. On the 27th September, 2018 Amy became acutely unstable with increasing heart dysfunction which led to her death at 5.50am on the 28th September, 2018.

12. The operation of the 4th September, 2018 set in train a sequence of events which caused her death on the 28th September, 2018.

13. She was not able to withstand the effects of surgery and its aftermath upon her.

14. Amy would not have died on the 28th September 2018 had the operation of the 4th September, 2018 not taken place.

5	**CORONER'S CONCERNS** During the course of the inquest, the following evidence revealed matters giving rise to concern. In my opinion, there is a risk that future deaths will occur unless action is taken. In the circumstances, it is my statutory duty to report to you. The **MATTERS OF CONCERN** are as follows. Evidence was given by medical staff from Great Ormond Street Hospital that: 1. At Multi-Disciplinary Team meetings convened on the 3rd July, 2018 and the 7th August, 2018 to discuss Amy's case pre-operation, it was identified that: (i) Amy should have ECMO support in the event of a cardiovascular collapse, and (ii) Extubation following the operation was to be regarded as a "*critical time*" from a pulmonary hypertension point of view. 2. Notwithstanding those concerns: (i) No pre-operative ECMO assessment was made of Amy, and (ii) No plans were put in place for EMCO to be available following the operation of the 4th September, 2018, and (iii) No members of the Intensive Care Unit were invited to any Multi-Disciplinary Team meeting concerning Amy's case, nor were any minutes of those meetings circulated to them, prior to her operation. 3. The handover of Amy post operation on the 4th September, 2018 between anaesthetists (who were involved in her operation) and members of the Paediatric Intensive Care Unit ("PICU") (who took over her care) involved conflicting advice and instruction as to how and when Amy should be extubated. The former considered that Amy should only be extubated when completely stable and the latter considered that there should be an early extubation. 4. No cardiology review or echocardiogram was carried out on Amy post operation but prior to extubation. Both had been requested or suggested by clinical staff involved in her operation. 5. Amy was extubated at about 11.20pm on the 4th September, 2018, when her physiological signs were deteriorating. No clinician at consultant level was present at the time of extubation and staffing levels were low. Shortly after extubation, Amy suffered a severe physiological

	deterioration with profound hypotension and tachycardia. She was intubated as an emergency at about 4am on the 5th September, 2018. 6. There was a delay in administering ECMO therapy because no pre-warning had been given to the ECMO team. EMCO was not started until about 8.30am on the 5th September, 2018. I am concerned that: (a) It appears there was a lack of awareness and sharing of information between departments at Great Ormond Street Hospital. In particular, the PICU had not been given any advance warning of Amy's complex medical background and needs before she was admitted there post operation. As PICU staff were not invited to the Multi-Disciplinary Team meetings prior to the operation, they were not aware of the "*critical time*" which lay ahead for her; (b) There was no clear plan or instruction for the management of Amy post operation in relation to extubation and ECMO support on the PICU; (c) The handover between clinicians involved in Amy's operation and those taking over her care in the PICU, was poorly executed with vital information either not properly conveyed or recorded or simply missed; (d) There was a delay in commencing ECMO support, and (e) No single properly informed clinician appeared to be co-ordinating Amy's post-operative care in such a complex and high risk case.
6	**ACTION SHOULD BE TAKEN** In my opinion, action should be taken to prevent future deaths and I believe that you have the power to take such action.
7	**YOUR RESPONSE** You are under a duty to respond to this report within 56 days of the date of this report, namely by 27th **November, 2019**. I, the coroner, may extend the period. Your response must contain details of action taken or proposed to be taken, setting out the timetable for action. Otherwise you must explain why no action is proposed.
8	**COPIES and PUBLICATION**

	I have sent a copy of my report to the following. • HHJ Mark Lucraft QC, the Chief Coroner of England and Wales; • [redacted] I am also under a duty to send the Chief Coroner a copy of your response. The Chief Coroner may publish either or both in a complete or redacted or summary form. He may send a copy of this report to any person who he believes may find it useful or of interest. You may make representations to me, the coroner, at the time of your response, about the release or the publication of your response by the Chief Coroner.
9	**DATE 30th September, 2019 SIGNED BY ASSISTANT CORONER EDWIN BUCKETT**